5   CLAIMS

What is claimed is:

1.   A method for modifying the structure of a network
accessible web site based on an analysis of activity associated
10   with the web site, the method comprising the steps of:

monitoring activity associated with said web site;

maintaining data representative of said activity and a

present structure of said web site;

applying a set of rules to said data to generate a

15   recommendation; and

modifying said structure of said web site based on said

recommendation.

2.   The method of claim 1, wherein the web site comprises a
20   home page, and a plurality of objects of interest, the home page
and plurality of objects of interest being accessible by a
network address, and further comprising the step of identifying
said present structure of said web site.

25   3.   The method of claim 2, wherein the step of identifying
said present structure of said web site further comprises the
steps of:

accessing said web site via said network address;

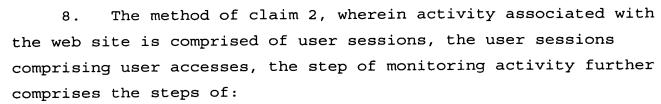parsing the structure data of said web site to generate said

30   present structure; and

storing data representative of said present structure.

5   4.   The method of claim 3, wherein the objects of interest
of the web site have an inter-connection relationship to each
other, numeric identifiers, names, and aliases to the names, and
the step of parsing the structure data further comprises at least
one of the following steps:

10   (a)   retrieving said names of said objects of interest;

          (b)   retrieving said numeric identifiers of said
                 objects of interest;

          (c)   retrieving said aliases corresponding to said
                 objects of interest;

15   (d)   retrieving said inter-connection relationship of
                 said objects of interest;

          (e)   retrieving a list of children, wherein said
                 children are the identities of all said objects of
                 interest that may be accessed directly from a

20   particular object of interest;

          (f)   retrieving a list of parents, wherein said parents
                 are the identities of all said objects of interest
                 that have direct access to a particular object of
                 interest; and

25   (g)   retrieving a list of page distances, wherein said
                 page distances are the number of objects of interest
                 that must be accessed to get from one object of
                 interest to a different object of interest.

30   5.   A computer-readable medium having computer executable
instructions for performing the steps recited in claim 1.

     6.   A computer-readable medium having computer executable
instructions for performing the steps recited in claim 2.

     7.   A computer-readable medium having computer executable
35   instructions for performing the steps recited in claim 3.

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8. The method of claim 2, wherein activity associated with the web site is comprised of user sessions, the user sessions comprising user accesses, the step of monitoring activity further comprises the steps of:

10
     identifying a user of said user sessions;
     mapping data associated with said user session; and
     storing said data associated with said user session in a
          data storage means.

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9. The method of claim 8, wherein the step of mapping the data further comprises the following steps:
     retrieving the order of user accesses to said web site's
          objects of interest; and
     retrieving the time of said user accesses to said web site's
20
          objects of interest.

10. A computer-readable medium having computer executable instructions for performing the steps recited in claim 8.

11. A computer-readable medium having computer executable
25 instructions for performing the steps recited in claim 9.

5   12. The method of claim 2, wherein said maintaining step
further comprises at least one of the following steps:

(a) creating an elements data structure, wherein said
     elements data structure indicates a total number of
     objects of interest within said web site;

10   (b) creating a session step data structure, wherein said
     session step data structure indicates the maximum
     number of steps in any of said user sessions;

(c) creating a SPUS structure, wherein said SPUS structure
     indicates a total number of steps per user session;

15   (d) creating a TUS structure, wherein said TUS structure
     indicates a total number of user sessions;

(e) creating a CLASS structure, wherein said CLASS
     structure indicates a class for each object of interest
     in said web site; and

20   (f) creating a TC structure, wherein said TC structure
     indicates a total number of said classes in said web
     site.

5   13.   The method of claim 12, wherein said maintaining step
further comprises at least one of the following steps:

          (a)   creating a distance matrix, said distance matrix having
                two dimensions, wherein said distance matrix indicates
                the shortest object distance;

10   (b)   creating a links-to matrix, said links-to matrix having
                two dimensions in the form [x] [y], wherein said links-
                to matrix indicates the number of links to a particular
                object of interest by a specific Step or less, the
                number of links is indicated by [y], the specific Step

15   or less is indicated by [x];

          (c)   creating a links-from matrix, said links-from matrix
                having two dimensions in the form [x] [y], wherein said
                links-from matrix indicates the total number of links
                from a certain object of interest to other objects of

20   interest by a specific Step or less, the total number
                of links to other objects of interest being indicated
                by [x], and the specific Step or less being indicated
                by [y];

          (d)   creating a total accesses-to matrix, wherein said total

25   accesses-to matrix indicates the total number of
                accesses to a particular object of interest in a
                specific Step within said user session;

          (e)   creating a total access-from matrix, wherein said total
                access-from matrix indicates the total number of

30   accesses from a particular object in a specific step
                within said user session; and

5   (f)   creating an access matrix, said access matrix having

                three dimensions in the form [x][y][z], wherein said

                access matrix indicates the number of times an object

                of interest was accessed from one particular object of

                interest to a different object of interest at a

10   specific Step, from one particular object of interest

                being indicated by [x], to a different object of

                interest being indicated by [y], and the specific Step

                being indicated by [z].

15   14.   A computer-readable medium having computer executable

instructions for performing the steps recited in claim 12.

         15.   A computer-readable medium having computer executable

instructions for performing the steps recited in claim 13.

20   16.   The method of claim 2, wherein the basic rules are

applied utilizing a rule engine algorithm and an anomalies

floatation device, the step of applying a set of rules further

comprising the steps of:

         (a)   applying a rule of object distance, wherein said object

25   distance is the number of objects of interest that must

                be accessed to get from one of said objects of interest

                to a different object of interest;

         (b)   applying a rule of Step, wherein the Step is the number

                of objects of interest that is actually accessed to get

30   from one of said objects of interest to a different

                said objects of interest during said user session; and

         (c)   applying a rule of Class, wherein said Class is the

                number of objects of interest that must be accessed to

                get from said homepage of said web site to said objects

35   of interest.

5   17. The method of claim 16, wherein said step of applying a
set of rules further comprises the steps of:
        transferring the maintained data to said anomaly floatation
            device;
        comparing an expected activity data to said data
10   representative of said activity, wherein said anomalies
            floatation device having an output comprised of
            anomalies; and
        grouping said anomalies according to said activity, wherein
            said grouping is performed by said rule engine
15   algorithm to indicate recommendations.

5   18.   The method of claim 17, wherein the step of comparing

further comprises at least one of the following steps:

    (a)   applying a step-distance anomaly, wherein said step-
            distance anomaly is based on at least the number of
            accesses in the particular Step and the distance

10   between two particular objects of interest;

    (b)   applying a no-link anomaly, wherein said no-link
            anomaly is based at least in part on the number of
            accesses in a particular Step and the distance between
            the two particular objects of interest, the two

15   particular objects of interest having no direct
            hyperlink;

    (c)   applying a dominant anomaly, wherein said dominant
            anomaly is based at least in part on a dominant object
            of interest from which the most accesses are made to a

20   particular object of interest in a particular Step;

    (d)   applying a deficiency anomaly, wherein said deficiency
            anomaly is based at least in part on a deficient object
            of interest to which a deficient number of accesses are
            made from a particular object of interest in a

25   particular Step;

    (e)   applying a dominant-connect anomaly, wherein said
            dominant-connect anomaly is based at least in part on a
            dominant number of accesses being made from said
            dominant object of interest among a plurality of

30   connected objects of interest to a particular object of
            interest in a particular Step;

(f) applying a deficiency-connect anomaly, wherein said deficiency-connect anomaly is based at least in part on a deficient number of accesses being made from a deficient object of interest among a plurality of connected objects of interest to a particular object of interest in a particular Step;

(g) applying a high access ratio anomaly, wherein said high access ratio anomaly is based at least in part on the number of accesses in a particular step using only one direction of access and the distance between the two particular objects of interest, the two particular objects of interest having no direct hyperlink;

19. The method of claim 18, wherein if the step of applying a dominant anomaly is applied, the step of comparing further comprises at least one of the following steps:

(h) applying a threshold-dominant anomaly, wherein said threshold-dominant anomaly is based at least in part on the most accesses to a given object of interest at a plurality of step distances, the accesses to said given object of interest must exceed a pre-set minimum; and

(i) applying a complete-a-link anomaly, wherein said complete-a-link anomaly is based at least in part on the ratio of accesses from a particular objects of interest directly linked to another versus a particular objects of interest linked to others by a greater distance.

20. A computer-readable medium having computer executable instructions for performing the steps recited in claim 16.

21. A computer-readable medium having computer executable instructions for performing the steps recited in claim 17.

22. A computer-readable medium having computer executable instructions for performing the steps recited in claim 18.

23. A computer-readable medium having computer executable instructions for performing the steps recited in claim 19.

24. The method of claim 2, wherein the step of customizing the web site is performed automatically by a computer-readable medium having computer executable instructions for performing the step, based at least in part on said recommendations for customizing said web site.

25. The method of claim 2, wherein the step of customizing said web site is performed by interacting with said web site structure through human intervention, based at least on said recommendations for customizing said web site.

26. The method of claim 1, wherein activity associated with the web site is comprised of user sessions, the user sessions comprising user accesses, the step of monitoring activity further comprises the steps of:

identifying a user of said user sessions;

mapping data associated with said user session; and

storing said data associated with said user session in a data storage means.

27. The method of claim 26, wherein the step of mapping the data further comprises the steps of:

    retrieving the order of user accesses to said web site's objects of interest; and

    retrieving the time of said user accesses to said web site's objects of interest.

28. A computer-readable medium having computer executable instructions for performing the steps recited in claim 26.

29. A computer-readable medium having computer executable instructions for performing the steps recited in claim 27.

30. The method of claim 1, wherein said maintaining step further comprises at least one of the following steps:

    (a) creating an elements data structure, wherein said elements data structure indicates a total number of objects of interest within the website;

    (b) creating a session step data structure, wherein said session step data structure indicates the maximum number of steps in any of said user sessions;

    (c) creating a SPUS structure, wherein said SPUS structure indicates a total number of steps per user session;

    (d) creating a TUS structure, wherein said TUS structure indicates a total number of user sessions;

    (e) creating a CLASS structure, wherein said CLASS structure indicates a class for each object of interest in said web site; and

    (f) creating a TC structure, wherein said TC structure indicates a total number of said classes in said web site.

5   31.   The method of claim 30, wherein said maintaining step
further comprises at least one of the following steps:

(a)   creating a distance matrix, said distance matrix having
      two dimensions, wherein said distance matrix indicates
      the shortest object distance;

10   (b)   creating a links-to matrix, said links-to matrix having
            two dimensions in the form [x] [y], wherein said links-
            to matrix indicates the number of links to a particular
            object of interest by a specific Step or less, the
            number of links is indicated by [y], the specific Step
15   or less is indicated by [x];

(c)   creating a links-from matrix, said links-from matrix
      having two dimensions in the form [x] [y], wherein said
      links-from matrix indicates the total number of links
      from a certain object of interest to other objects of
20   interest by a specific Step or less, the total number
      of links to other objects of interest being indicated
      by [x], and the specific Step or less being indicated
      by [y];

(d)   creating a total accesses-to matrix, wherein said total
25   accesses-to matrix indicates the total number of
      accesses to a particular object of interest in a
      specific Step within said user session;

(e)   creating a total access-from matrix, wherein said total
      access-from matrix indicates the total number of
30   accesses from a particular object in a specific step
      within said user session; and

5   (f)   creating an access matrix, said access matrix having

three dimensions in the form [x] [y] [z], wherein said

access matrix indicates the number of times an object

of interest was accessed from one particular object of

interest to a different object of interest at a

10   specific Step, from one particular object of interest

being indicated by [x], to a different object of

interest being indicated by [y], and the specific Step

being indicated by [z].

15   32.   A computer-readable medium having computer executable

instructions for performing the steps recited in claim 30.

33.   A computer-readable medium having computer executable

instructions for performing the steps recited in claim 31.

20   34.   The method of claim 1, wherein the basic rules are

applied utilizing a rule engine algorithm and an anomalies

floatation device, the step of applying a set of rules further

comprises the steps of:

(a)   applying a rule of object distance, wherein said object

25   distance is the number of objects of interest that must

be accessed to get from one of said objects of interest

to a different object of interest;

(b)   applying a rule of Step, wherein the Step is the number

of objects of interest that is actually accessed to get

30   from one of said objects of interest to a different

said objects of interest during said user session; and

(c)   applying a rule of Class, wherein said Class is the

number of objects of interest that must be accessed to

get from said homepage of said web site to said objects

35   of interest.

5   35. The method of claim 34, wherein said step of applying a
set of rules further comprises the steps of:
          transferring the maintained data to said anomaly floatation
              device;
          comparing an expected activity data to said data
10   representative of said activity, wherein said anomalies
              floatation device having an output comprised of
              anomalies; and
          grouping said anomalies according to said activity, wherein
              said grouping is performed by said rule engine
15   algorithm to indicate recommendations.

5   36.   The method of claim 35, wherein the step of comparing
further comprises at least one of the following steps:

(a)   applying a step-distance anomaly, wherein said step-
distance anomaly is based on at least the number of
accesses in the particular Step and the distance

10   between two particular objects of interest;

(b)   applying a no-link anomaly, wherein said no-link
anomaly is based at least in part on the number of
accesses in a particular Step and the distance between
the two particular objects of interest, the two

15   particular objects of interest having no direct
hyperlink;

(c)   applying a dominant anomaly, wherein said dominant
anomaly is based at least in part on a dominant object
of interest from which the most accesses are made to a

20   particular object of interest in a particular Step;

(d)   applying a deficiency anomaly, wherein said deficiency
anomaly is based at least in part on a deficient object
of interest to which a deficient number of accesses are
made from a particular object of interest in a

25   particular Step;

(e)   applying a dominant-connect anomaly, wherein said
dominant-connect anomaly is based at least in part on a
dominant number of accesses being made from said
dominant object of interest among a plurality of

30   connected objects of interest to a particular object of
interest in a particular Step;

(f)   applying a deficiency-connect anomaly, wherein said
        deficiency-connect anomaly is based at least in part on
        a deficient number of accesses being made from a
        deficient object of interest among a plurality of
        connected objects of interest to a particular object of
        interest in a particular Step;

(g)   creating a high access ratio anomaly, wherein said high
        access ratio anomaly is based at least in part on the
        number of accesses in a particular step using only one
        direction of access and the distance between the two
        particular objects of interest, the two particular
        objects of interest having no direct hyperlink;

37.   The method of claim 36, wherein if the step of applying
a dominant anomaly is applied, the step of comparing further
comprises at least one of the following steps:

(h)   applying a threshold-dominant anomaly, wherein said
        threshold-dominant anomaly is based at least in part on
        the most accesses to a given object of interest at a
        plurality of step distances, the accesses to said given
        object of interest must exceed a pre-set minimum; and

(i)   applying a complete-a-link anomaly, wherein said
        complete-a-link anomaly is based at least in part on
        the ratio of accesses from a particular objects of
        interest directly linked to another versus a particular
        objects of interest linked to others by a greater
        distance.

38.   A computer-readable medium having computer executable
instructions for performing the steps recited in claim 34.

39.   A computer-readable medium having computer executable
instructions for performing the steps recited in claim 35.

40. A computer-readable medium having computer executable instructions for performing the steps recited in claim 36.

41. A computer-readable medium having computer executable instructions for performing the steps recited in claim 37.

42. The method of claim 1, wherein the step of customizing the web site is performed automatically by a computer-readable medium having computer executable instructions for performing the step, based at least in part on said recommendations for customizing said web site.

43. The method of claim 1, wherein the step of customizing said web site is performed by interacting with said web site structure through human intervention, based at least on said recommendations for customizing said web site.

44. An apparatus for modifying the structure of a network accessible web site, the apparatus comprising:

a communications means for establishing communications with said web site;

an input for accepting data representative of activity associated with said web site;

a memory buffer for providing storage for a structure associated with said web site and said activity;

a processing unit for:

applying a set of rules to said activity and said structure;

generating a recommendation; and

an output for providing said recommendation.

5   45.   An apparatus for modifying the structure of a network
accessible web site, the apparatus comprising:
          a communications means for establishing communications with
                  said web site;
          an input for accepting data representative of activity
10   associated with said web site and a structure
                  associated with said web site;
          a memory buffer for providing storage for said structure and
                  said activity;
          a processing unit for
15   applying a set of rules to said activity and said
                          structure;
                  generating a recommendation; and
          an output for providing said recommendation.